Boucher, Aimee

From:	Fagel, Jason R (DEC) <jason.fagel@dec.ny.gov>
Sent:	Wednesday, July 18, 2018 10:46 AM
To:	Boucher, Aimee
Cc:	Sarah Rickard; Karen Stainbrook
Subject:	Brooktrout Lake
Attachments:	ALTM Brooktrout Lake Chemistry 1992_2017.xlsx; tmdlacidlkadir.pdf

Aimee,

Myself and other staff have taken a second look at the chemistry and recovery metrics for Brooktrout Lake, as well as the most recent NY acid lake TMDL that was approved by EPA in 2014 (attached). As you pointed out, the current average pH of the lake is only 5.9, but for a variety of reasons we still believe that this waterbody has recovered from its former state of impairment. Here are some things to keep in mind during your review of the Brooktrout Lake delisting.

- Although it is not indicated on the current 303(d) List or the PWL Fact Sheet, Brooktrout Lake is contained entirely within the NYS Forest Preserve. Therefore its proper waterbody classification is FP, not C(T) as currently documented. FP waters are protected by Article XIV of the New York State Constitution and designated to "be forever kept as wild" and their water quality should be altered from their natural state. The boundaries of the Forest Preserve have expanded as the State acquires new lands, and we have kept up with noting the classification changes. There does not need to be a formal re-classification rulemaking when waters are enveloped by FP expansion.

- As an FP waterbody, there is no numeric water quality standard (WQS) for pH that is applicable. The TMDL notes the lack of an applicable pH WQS, and both this TMDL and the former TMDL are specific to FP waters, partially for this reason.

- The most recent acid lakes TMDL does not use pH as an endpoint, but instead specifies acid neutralizing capacity (ANC) as the recovery metric. There were many reasons pH was not used as an endpoint, but key among those reasons was the fact that there is no numeric pH WQS for the subject waters. The ANC threshold for recovery is > 11 μeq L^{-1}. The mean ANC for Brooktrout Lake for 2013-17 is 12.723 μeq L^{-1}, exceeding the recovery metric of the TMDL (data attached).

- Brooktrout Lake was considered in the 2014 acid lake TMDL, but not part of the final TMDL. The rational for excluding Brooktrout Lake was that the modeling showed it could not meet the ANC endpoint and therefore would not recover. Models are great tools, but they are a representation of a limited number of variables that interact within an ecosystem. The relationship among some of the variables that were driving the recovery conditions within in Brooktrout Lake (e.g., biological interactions) was not available (i.e., not a model input) in the model used for the acid lake TMDL and therefore the predicted model results could not be corroborated with observed data. Regardless of the model's predicted outcome, Brooktrout Lake it is now exceeding ANC goals, the pH is trending up, and the fishery is supported.

Let me know if you have any additional questions on this.

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